21525-M

1986 FACT BOOK

december-january 1986

school bus fleet

a bobit publication

SPECIAL EDITION $20

Industry Directory
Industry Statistics

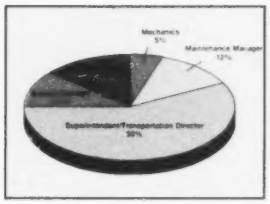
dec/jan '86 vol. 30 no. 6

school bus fleet

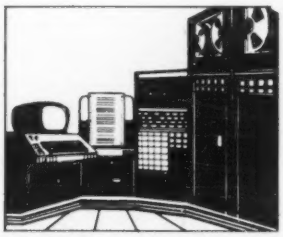
a bobit publication

Affiliated Publications
Metro
Automotive Fleet
Contemporary Surgery
Contemporary Orthopaedics
Waterbed
Limousine & Chauffeur

Bus Models *30*



Statistics *7*



Software *85*

Features

7 Industry Statistics

18 Industry Associations

30 1985 Bus Models

American Transportation
Blue Bird
Carpenter
Coach & Equipment
Collins
Crown
Gillig
Mid Bus
Superior
Thomas
Transportation Products
Wayne

Directory

43 Index
44 Buses & Chassis*
52 Components & Services*
85 Consultants & Software*
88 Distributors

** Bold Face titles indicate School Bus Fleet Magazine advertisers.*

Departments

Classified 106 Ad Index 111 Publisher's Perspective 112

Member:
National School Transportation Association
National Association for Pupil Transportation
business publication audit, inc.

SCHOOL BUS FLEET (ISSN 0036-5601) is published six times a year (February, April, June, August, October and December) by Bobit Publishing Company. The contents of this publication may not be reproduced either in whole or part without consent of Bobit Publishing Company. Please address ALL correspondence to Editorial and Executive Offices at 2500 Artesia Blvd., Redondo Beach, CA 90278. Subscription prices $12 for 1 yr.; $20 for 2 yrs.; Canada $18 for 1 yr.; $30 for 2 yrs.; Foreign $50 for 1 yr.; $100 for 2 yrs., (US Currency). Single copy $2, except Fact Book, $20. Second class postage paid at Redondo Beach, CA 90278-9988 and at additional entry. POSTMASTER: Return Form 3579 to 2500 Artesia Blvd., Redondo Beach, CA 90278.

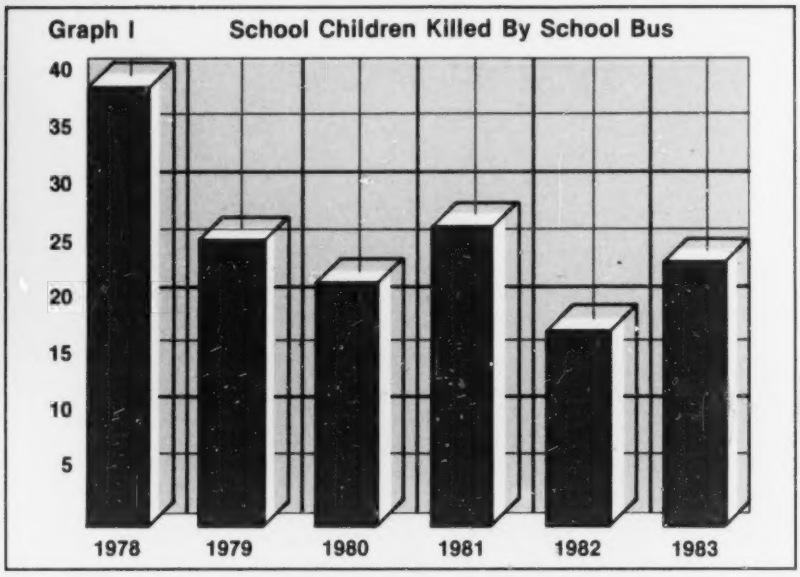
School Transportation in 1983-84

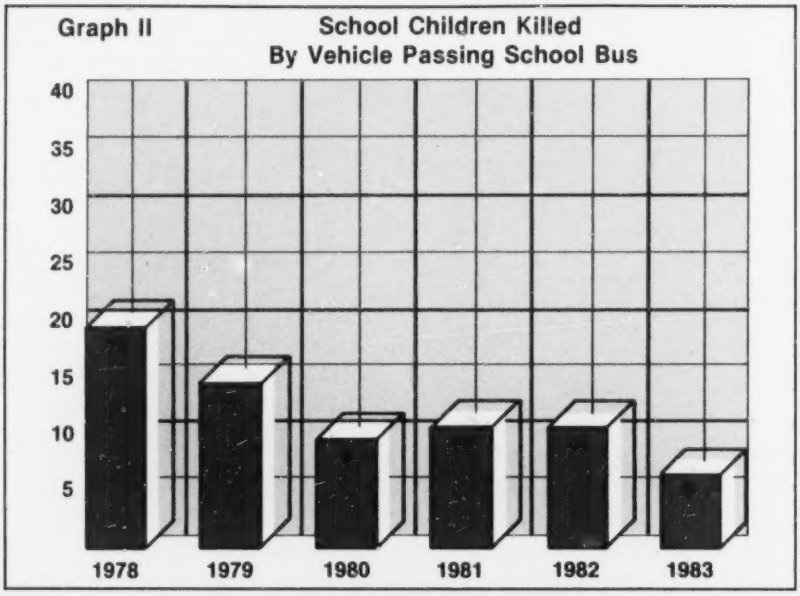
Based on reports from State Departments of Education.
Prepared by The National Association State Directors of Pupil Transportation Services and Bobit Publishing Research Dept.

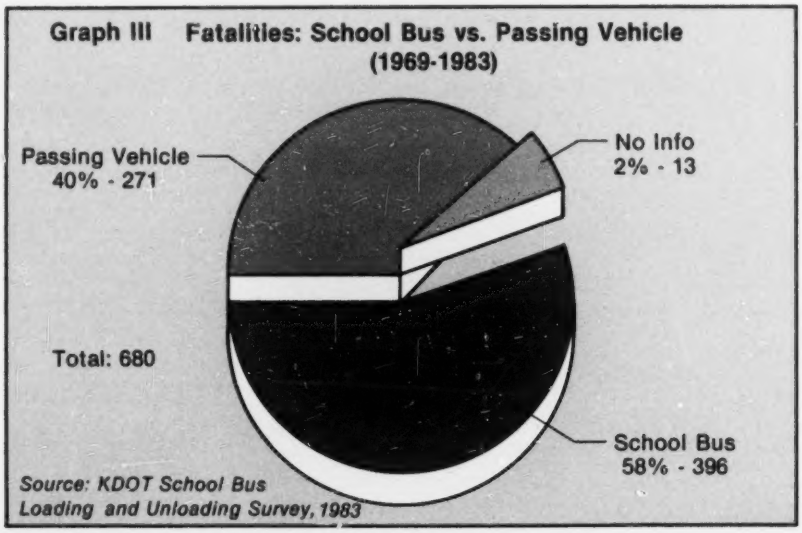
State	Pupils Transported at Public Expense	Ownership: Public Type I	Public Type II	Contractor Type I	Contractor Type II	Total Number of Number Buses	Miles: Public Operated	Miles: Contractor Operated	Transportation Expenditures Including Capital Outlay
Alabama	457,573	6,362	178	158	6	6,704	53,044,951	N/A	83,325,962
Alaska	41,699	73	55	422	64	614	5,794,917	N/A	22,284,655
Arizona	200,034	2,972	334	68	N/A	3,530	35,997,480	316,835	47,645,992
Arkansas	N/A	3,900	182	N/A	N/A	4,082	39,677,040	N/A	N/A
California	864,800	9,311	2,375	2,937	2,625	18,680	148,812,402	84,720,846	439,103,034
Colorado	221,622	3,434	242	215	8	3,899	40,724,293	N/A	46,647,627
Connecticut	243,000	264	4	3,789	620	4,686	N/A	N/A	83,467,351
Delaware	97,216	325	29	895	3	1,483	5,105,880	10,526,486	24,867,539
Florida	791,972	7,212	N/A	575	N/A	7,787	121,776,700	9,446,670	164,585,093
Georgia	803,438	6,990	634	239	65	7,928	79,098,400	3,866,120	119,928,715
Hawaii	40,352	715	226	492	226	1,451	N/A	N/A	14,689,688
Idaho	120,000	71	1,602	314	10	1,997	14,753874	4,235,472	23,255,723
Illinois	750,000	N/A	N/A	N/A	N/A	24,758	N/A	N/A	43,566,000
Indiana	646,052	5,924	N/A	2,353	N/A	8,413	39,799,980	18,200,340	131,853,860
Iowa	253,031	5,853	187	198	0	6,500	62,553,372	N/A	59,132,721
Kansas	159,625	2,986	401	856	86	4,366	64,876,675	N/A	52,176,469
Kentucky	462,204	7,012	65	194	26	7,297	66,881,330	4,666,783	93,787,614
Louisiana	617,414	120	3,305	143	3,943	7,511	30,021,515	35,815,141	110,576,352
Maine	167,004	1,806	48	25	371	2,250	N/A	N/A	32,434,978
Maryland	440,137	2,313	15	2,408	144	4,880	34,539,814	37,400,232	117,444,211
Massachusetts	559,586	1,608	529	3,741	1,497	7,375	76,998,393	N/A	129,326,852
Michigan	964,293	10,422	1,840	400	N/A	13,662	150,301,069	N/A	250,000,000
Minnesota	818,077	4,092	237	3,965	167	8,563	106,145,666	N/A	93,138,095
Mississippi	358,388	5,090	129	N/A	N/A	5,219	42,266,746	2,540,000	52,415,659
Missouri	454,050	5,879	165	3,727	89	9,860	60,487,195	35,826,069	122,270,090
Montana	66,108	687	N/A	633	N/A	1,320	N/A	N/A	15,231,594
Nebraska	248,674	N/A	N/A	N/A	N/A	3,577	29,890,676	N/A	32,521,924
Nevada	55,599	796	62	N/A	N/A	879	11,277,571	N/A	N/A
New Hampshire	94,482	234	32	1,242	275	1,783	N/A	N/A	14,025,972
New Jersey	628,412	3,715	1,674	4,572	3,528	13,489	97,030,889	N/A	233,091,900
New Mexico	128,140	1,157	289	430	107	1,983	5,483,280	22,036,136	39,787,121
New York	1,658,063	10,682	2,892	7,384	5,346	26,304	166,777,683	N/A	622,449,549
North Carolina	725,732	12,825	0	N/A	N/A	12,825	110,511,098	N/A	107,800,000
North Dakota	48,281	1,523	113	374	27	2,037	N/A	N/A	23,941,793
Ohio	1,298,108	14,216	200	426	100	16,507	158,755,620	5,762,520	235,962,557
Oklahoma	295,694	6,131	264	N/A	N/A	6,395	58,806,902	N/A	74,514,847
Oregon	226,650	2,618	303	1,204	100	4,525	39,611,238	N/A	62,109,293
Pennsylvania	1,545,995	N/A	N/A	N/A	N/A	N/A	230,112,000	N/A	N/A
Rhode Island	103,192	N/A	N/A	N/A	N/A	1,652	15,178,752	N/A	N/A
South Carolina	407,190	5,942	457	0	345	6,744	59,857,335	N/A	46,159,368
South Dakota	47,000	721	67	391	27	1,206	11,163,600	4,378,850	17,104,869
Tennessee	567,510	4,705	127	1,255	183	6,270	50,541,320	18,694,000	72,271,230
Texas	947,110	20,913	1,568	N/A	N/A	22,481	208,167,467	N/A	263,318,603
Utah	127,724	1,328	61	63	N/A	1,452	14,753,037	973,676	18,975,000
Vermont	71,260	585	49	N/A	N/A	1,219	6,662,916	N/A	15,154,728
Virginia	734,528	10,269	354	232	0	10,855	83,666,209	1,143,864	113,364,800
Washington	376,727	4,975	268	619	151	6,013	50,845,057	10,559,243	113,364,800
West Virginia	293,014	*	*	N/A	N/A	3,003	37,027,064	310,862	69,687,177
Wisconsin	462,347	6,859	0	N/A	N/A	6,859	73,807,099	N/A	105,339,602
Wyoming	41,322	976	252	41	20	1,289	12,901,850	171,966	25,682,334
Manitoba	55,916	1,500	78	100	163	1,861	N/A	N/A	28,387,616
Guam	31,000	0	205	0	0	205	N/A	N/A	5,938,088
Saipan	1,952	16	0	N/A	N/A	16	N/A	N/A	N/A
Washington D.C.	2,650	0	148	0	0	148	1,975,560	0	N/A
TOTALS	**21,821,947**	**208,089**	**22,245**	**47,089**	**20,322**	**326,392**	**2,814,461,915**	**311,592,111**	**4,724,722,010**

***Not separated by types**

Transportation expenditures including capital outlay were not reported by the following: Arkansas, Nevada, Pennsylvania, Rhode Island and Washington, D.C. In order to more accurately present the total expenditures for all states and districts, Bobit Publishing Research Department has estimated the expenditures for these states and the District of Columbia — based on the magnitudes of their school bus operations in comparison to reports from other states with operations of similar magnitudes. These estimates add about $325 million to the reported total of $4,724,722,010, for an estimated total of about $5,049,722,010. In addtion, only 17 states reported expenditures for their contractor fleets for a total of $617,865,341. Bobit Publishing Research Department conservatively estimates that an additional$500 million to $1 billion would be added to this figure if all other states and districts had reported data for their contractor fleets. Thus, the estimated total expeditures including capital outlay for all contractor fleets were between $1 billion and $1.6 billion in 1983-84. Considering all reported data and estimates by Bobit Publishing Research Department, the total transportation expenditures including capital outlay for the entire U.S. pupil transportation industry could have been as high as $6 billion in 1983-84.







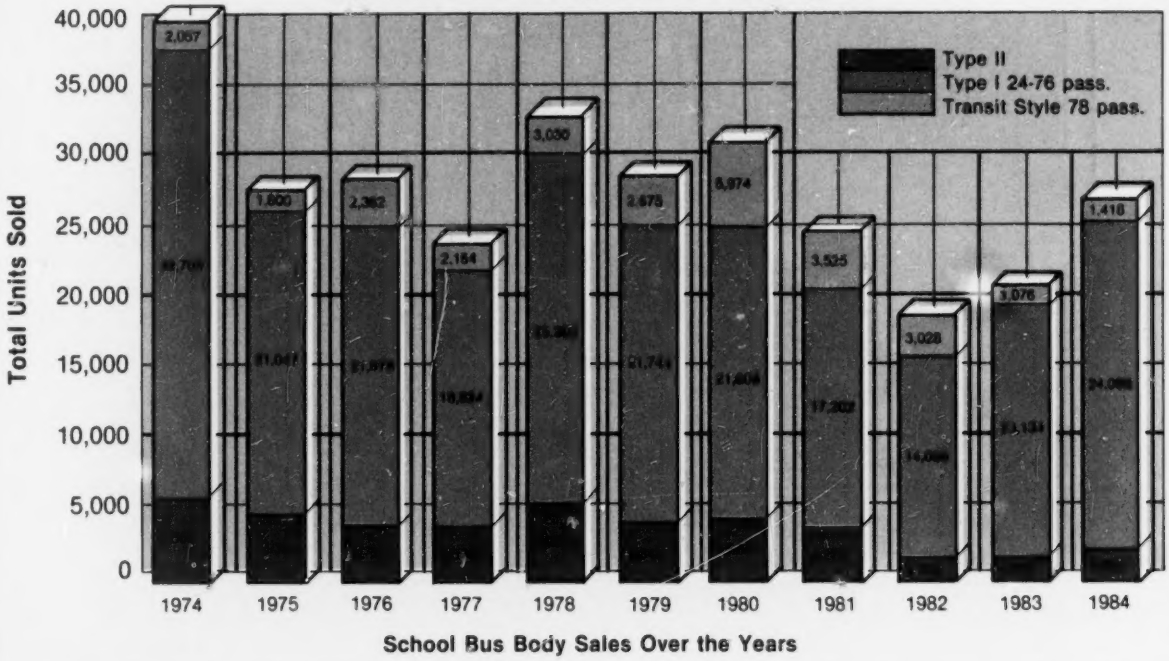
Comparing School Bus Fatality Causes: School Bus vs. Passing Vehicle

Although the school bus industry points with pride to its overall safety record, there is little pride in one area: an alarming 35 percent increase in the number of children killed by their own school buses while outside the buses during loading or unloading — up to 23 fatalities in 1983 (school year 1983-84) from 17 fatalities in 1982. Meanwhile, the number of children killed by vehicles passing their school buses decreased 27 percent, down to 8 fatalites in 1983 from 11 fatalities in 1982. For the calendar years 1980 to 1983, school-bus related accidents outnumbered those involving "the other vehicle." During those years, the school bus was involved in 69 percent of the accidents, or in 87 of the 126 fatalities that occurred.

Graph I shows how the number of children killed by their own buses has increased and decreased over the years, concluding with another increase in 1983; graph 2 shows how the number of children killed by vehicles passing their school buses has decreased since 1978; and graph 3 compares the percentages of the mean total number of school bus fataltites since 1969 that resulted from children being killed by their own school buses to those that resulted from children being killed by passing vehicles. The picture that emerges reveals that the number of children being killed by their own school buses is not only increasing, but is also increasing in proportion to the total number of school bus fatalities.

School Bus Body Sales 1974-84

Graph 1



School Bus Body Sales Over the Years

School bus body sales over the last decade have been cyclic. Years in which larger numbers of bus bodies were sold have been followed by years in which smaller numbers were sold, and vice versa.

continued on graph 2

Source: Manufacturers' records (all school bus manufacturers); School Bus Fleet *Media Kit*

D&L IS PROUD TO INTRODUCE ITS OWN S-SERIES HOOD GLOVES

Here we have a worn hood. Paint & metal worn to a sharp razors edge

D&L is proud to introduce its own S-Series hood glove. The D&L hood glove is a protective device which will save your S-Series hood. Take a look at the rear lower corners of your S-Series hood, paint and metal worn!! The D&L S-Series hood glove will protect your hood from the damage caused by everyday hood vibration.

Now your S-Series Hood is protected against the wear and tear from everyday hood vibration

The hood glove slips easily over the worn corner. Then glues permanently into place

The hood glove slips easily (with a touch of silicone) over the worn corner, then glues permanently into place.

Distributors Inquiries Welcomed

DLG-100-B (Black) DLG-100-Y (Yellow)

To order or for more information call:
1-800-424-3673 NYS Wats 1-800-635-5567 Nationwide

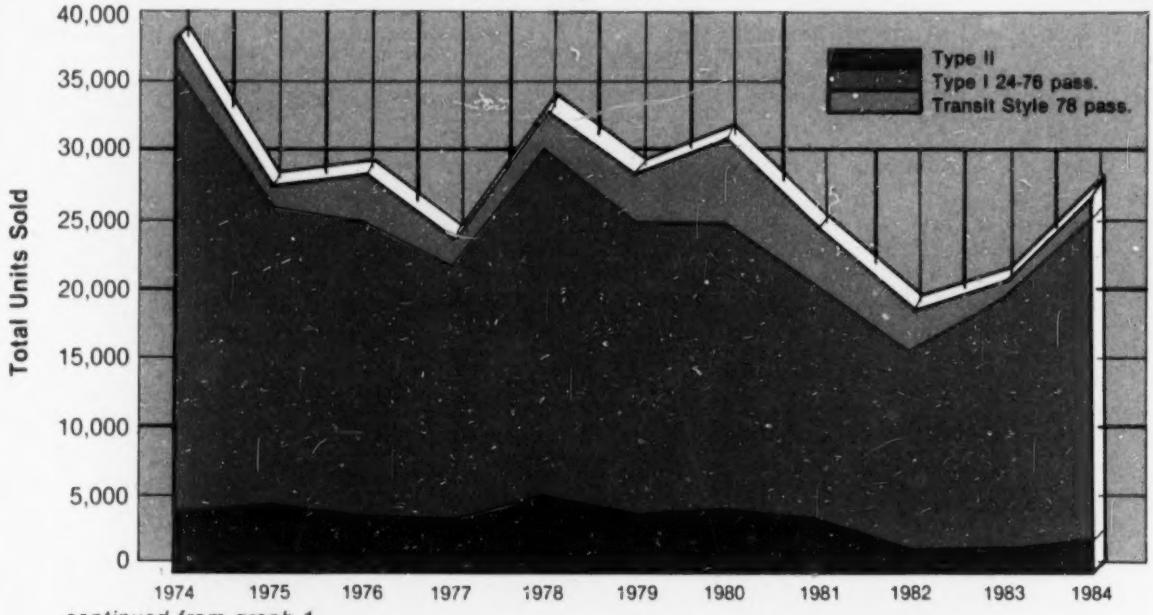
PO BOX 441 MANLIUS N.Y. 13104-0441
2222 COUNTY RT. 90 WAYLAND N.Y. 14572

D&L TRUCK & BUS PARTS INC.

Circle 105 on SBF Action Card

School Bus Body Sales 1974-84

Graph 2

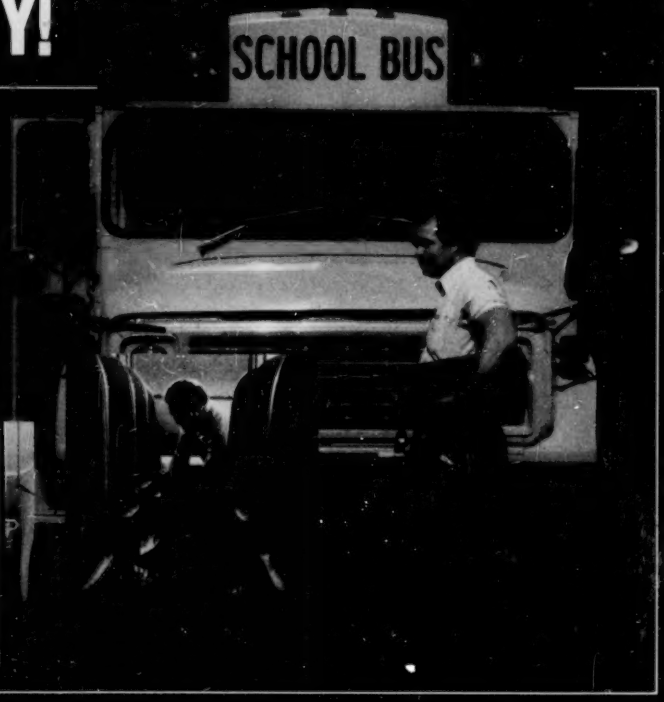


continued from graph 1

Graph 1 shows the total number of each type of bus body sold by year. And graph 2 shows the fluctuations in sales over the years, with each line representing a particular type of bus body. Currently, the industry appears to be on the upswing, as manufacturers report that their inventories and production rates are at or near capacity.

Source: Manufacturers' records (all school bus manufacturers); School Bus Fleet *Media Kit*

HE'S LAYING DOWN THE RULES FOR CHILD SAFETY!



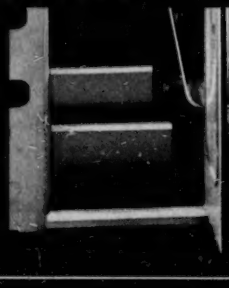
Safety First Transit Flooring & Step Treads

Safe, sure footing under all weather conditions is a must for school bus safety. And resilient, fiber reinforced, slip-resistant rubber flooring and step treads do the job best.

They're long-wearing, too, and are included in the Minimum Standards for School Buses recommended by the National Conference on School Transportation, NEA, 1970. Materials meet Motor Vehicle Safety Standard #302.

Kids may come and go, but we'll be watching out for their safety every step of the way.

For complete information, call or write the R.C.A. Rubber Company.



THE R.C.A. RUBBER COMPANY
An Ohio Corporation of Akron, Ohio
1833 E. Market Street,
Akron, Ohio 44305
(216) 784-1291

Circle 106 on SBF Action Card

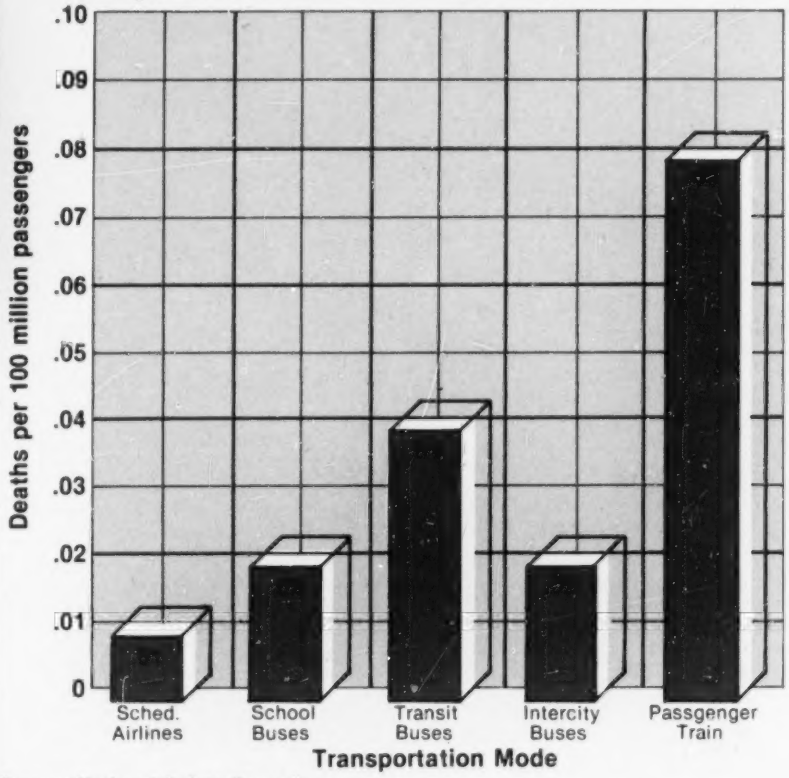
School Bus Accidents by State

State	Vehicles	Annual Bus Mileage (000)	Pupils Transp. Daily	Type of School Bus Accident				Prop. Damage Only Acc.	Persons Injured	
				Total[a]	Other Veh.	Non-coll.	Fixed Obj.		Total	Pupils
U.S.[b]	**340,000**	**3,400,000**	**22,100,000**	**29,000**	**25,000**	**400**	**2,000**	**23,000**	**8,400**	**5,500**
Alabama	...	51,105	386,239	258	242	2	14	245	104	97
Alaska	600	7,200	39,000	124	107	0	14	113	...	...
Arizona	3,316	35,245	199,986	199	184	2	6	135	143	72
Arkansas	4,180	39,428	263,916	230	80	2	0	203	68	57
California	17,248	245,555	867,549	1,282	897	65	69	976	536	286
Colorado	...	...	...	207	186	1	...	...	...	...
Connecticut	4,686	...	243,000	788	684	0	39	683	136	37
Delaware	1,252	15,632	81,043	91	77	0	8	71	16	7
Dist. of Col.	144	2,073	2,600	58	...	...	...	...	7	6
Florida	7,787	...	738,007	579	386	0	110	531	48	24
Georgia	9,473	...	803,390	969	...	...	104	...	275	230
Hawaii	735	7,374	38,048	36	23	0	3	26	19	10
Idaho	2,004	18,989	120,000	99	77	1	8	81	18	12
Illinois	15,791	180,000	894,748	2,485	2,358	25	48	2,052	761	275
Indiana	8,629	59,529	663,834	...	...	...	...	673	...	128
Iowa	6,847	62,829	253,031	511	359	15	118	451	111	41
Kansas	...	...	...	...	...	...	...	...	...	...
Kentucky	7,297	71,548	462,204	941	763	2	78	804	216	148
Louisiana	7,511	65,837	583,959	711	672	5	7	676	86	77
Maine	2,280	26,680	167,004	148	132	1	11	134	13	3
Maryland	4,880	71,940	444,222	1,032	915	4	97	...	45	21
Massachusetts	7,279	66,613	512,259	1,020	847	1	74	893	175	143
Michigan	...	...	...	...	...	...	...	...	...	...
Minnesota	9,923	90,170	700,000	675	564	9	17	496	340	185
Mississippi	5,300	42,807	358,388	271	...	...	...	...	89	72
Missouri	9,242	96,279	453,662	599	527	0	32	501	259	193
Montana	1,320	17,827	63,108	55	48	3	3	51	4	4
Nebraska	3,622	31,139	61,427	153	145	0	6	132	29	14
Nevada	874	11,278	55,174	62	54	0	3	41	21	15
New Hampshire	1,827	10,793	94,482	190	165	2	16	160	83	59
New Jersey	12,600	120,000	628,412	573	446	22	59	273	298	206
New Mexico	2,021	23,330	130,691	161	137	1	12	136	35	14
New York	...	...	1,977,000	621	545	9	25	462	257	181
North Carolina	12,825	110,511	725,732	1,246	1,018	5	9	887	697	613
North Dakota	1,891	25,484	48,281	39	35	1	0	...	12	7
Ohio	14,374	153,207	1,319,505	1,665	...	...	...	1,437	225	225
Oklahoma	6,395	58,609	295,694	377	300	6	38	165	261	212
Oregon	3,822	39,611	226,650	330	240	9	73	304	44	13
Pennsylvania	19,521	230,112	1,545,995	2,011	1,700	58	214	...	406	142
Rhode Island	1,652	15,179	103,192	107	105	0	2	93	15	13
South Carolina	5,942	59,857	438,117	834	779	12	22	807	422	387
South Dakota	...	...	...	...	...	...	...	...	...	...
Tennessee	6,364	68,703	569,900	657	582	7	61	561	129	113
Texas	22,481	...	947,110	1,210	1,071	0	15	889	...	316
Utah	...	...	...	...	...	...	...	...	...	...
Vermont	...	...	...	...	...	...	...	...	...	...
Virginia	9,042	79,500	720,984	699	636	8	41	591	286	119
Washington	6,005	61,043	376,727	248	225	2	13	173	142	50
West Virginia	2,941	37,338	292,061	690	524	0	165	674	56	29
Wisconsin	6,859	73,807	462,347	642	532	3	0	490	252	...
Wyoming	1,289	13,074	41,322	52	45	2	3	47	8	3

Source: National Safety Council survey of state departments of education and state traffic authorities. Most reports cover 1983-1984 school year or 1984 calendar year. U.S. totals are Council estimates for the calendar year 1984.
[a]Totals include additional accident types not shown separately.
[b]Procedures for estimating U.S. totals have been revised for this edition and are not comparable to estimates in previous editions.

Transportation Accident Fatality Rate — 1980-82

Graph 1



Although most pupil transportation officials consider school buses to provide the safest mode of mass transportation available, scheduled airlines still surpass school buses as the safest overall mode of mass transportation (as measured by accident fatality rates, or the number of passenger fatalities per 100 million passengers, shown in graph 1). However, as far as surface mass transportation is con-

continued on graph 2

Source: National Safety Council

"REPLICA" LIGHTS

A. e Not As Good As The ORIGINALS by WELDON!

QUALITY--in Design, Material, Workmanship and Service, is the reason our lamps are the choice of manufacturers and fleets.

DESIGN--Our design must be the best. Look at all the copies!

MATERIAL--For over 18 years, our strong steel bodies, heavy gauge wire with hi-temp insulation, rugged SAE-type sockets, premium gaskets and sturdy acrylic lenses have meant lamps free from stripped screws, flickering connections and leaks.

WORKMANSHIP--Our factory assembly and testing assure easy to install, reliable lamps that last as long as your bus.

SERVICE--Knowledgeable advice, quick delivery, low prices and no one stands behind their products like we do!

Specify WELDON for Better Lighting

Weldon Inc.

2000 South High St.
Columbus, OH 43207
(614) 445-8291

Circle 108 on SBF Action Card

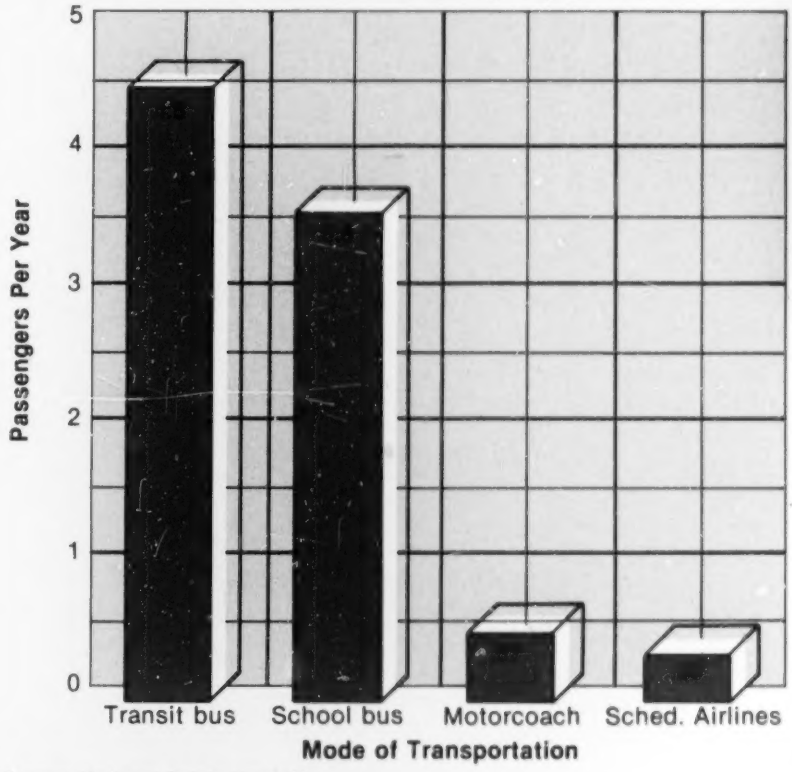
Graph 2

Annual Ridership by Mode

continued from graph 1

cerned, school buses are tied with intercity motorcoaches as the safest mode of surface mass transportation. And, considering the number of passengers carried each year by either scheduled airlines or intercity motorcoaches (see graph 2) — school buses may well be the safest mode of surface mass transportation in history.

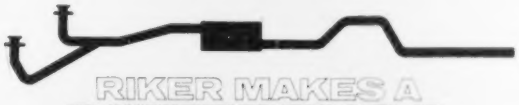
Source: National Safety Council



Source: National Safety Council

RIKER INDUSTRIES

NEW
HEAVY DUTY
SCHOOL BUS
EXHAUST
SYSTEMS



RIKER MAKES A
DIFFERENCE.

14 GAUGE ALUMINIZED
MATERIAL
FORD, GMC/CHEV. I.H.C.

DIRECT O.E.M. REPLACEMENT

2-3 TIMES LONGER LIFE
LESS DOWN TIME
LESS INVENTORY

CONTACT YOUR
LOCAL
RIKER WAREHOUSE DISTRIBUTOR
OR
RIKER MANUFACTURING INC.
P.O. BOX 6976
4901 STICKNEY AVENUE
TOLEDO, OHIO 43612
(419) 729 - 1626

Circle 109 on SBF Action Card

2/19/86 C1575-1A

february march 1986

school bus fleet

a bobit publication

The Denver Debacle
Thomas Fires Up Seating

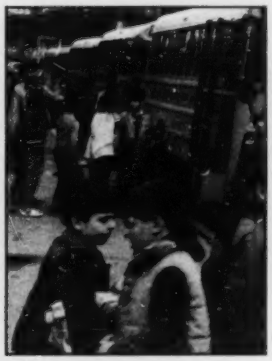
Plus: Ithaca's Diesel Conversion, NAPT, Donley's Dialogue and More...

feb/mar '86 vol. 31 no. 1

school bus fleet®

Bobit Publishing

Affiliated Publications:
Metro
Automotive Fleet
Contemporary Surgery
Contemporary Orthopaedics
Waterbed
Limousine & Chauffeur
Showcase USA
Yankee Trader



Ithaca...

Fire test...

Kroll...

Features

16 SBF Survey: State Directors of Pupil Transportion
50 directors give their opinions on this year's issues.

20 SBF Executive Dialogue: Robert B. Donley
AIDS, drug testing, technological breakthroughs, and more.

31 Ithaca Converts Fleet to Diesel
Diesel saves tax dollars, and creates preventive maintenance, while...

35 The Denver Debacle
...in Denver, 225 buses are grounded as a result of deferred maintenance.

40 Thomas Fires Up Seating
A fire test proves that new seat material is safer than standards require.

42 Kroll Named Administrator of Year
Award given for poster campaign that reduces "death zone" injuries.

44 Products That Reflect Safety
Safety emphasized in a display of products at the 1985 NAPT conference.

Departments

Industry News	4
SBF's Q&A	14
Letters to the Editor	50
Do You Remember	51
People in the News	51
Classified Advertising	51
Advertiser's Index	55
Publisher's Perspective	56

On the cover: Wayne's Lifeguard, Richmond Community Schools. Photo by Ralph Pyle.

Member:

VBPA NSTA NAPT ABP American Business Press Inc

SCHOOL BUS FLEET (ISSN 0036-6501) is published six times a year (February, April, June, August, October, and December) by Bobit Publishing Company. The contents of this publication may not be reproduced either in whole or in part without consent of Bobit Publishing Company. Please address ALL correspondence to Editorial and Executive Offices at 2500 Artesia Blvd., Redondo Beach, California 90278. Subscription prices: $12 for 1 yr.; $20 for 2 yrs. Canada, $18 for 1 yr.; $30 for 2 yrs. Foreign, $50. Single copy, $2 except Fact Book, $10. Second class postage paid at Redondo Beach, CA 90278-9988 and at additional entry. POSTMASTER: Send address changes to School Bus Fleet, 2500 Artesia Blvd., Redondo Beach, California 90278.

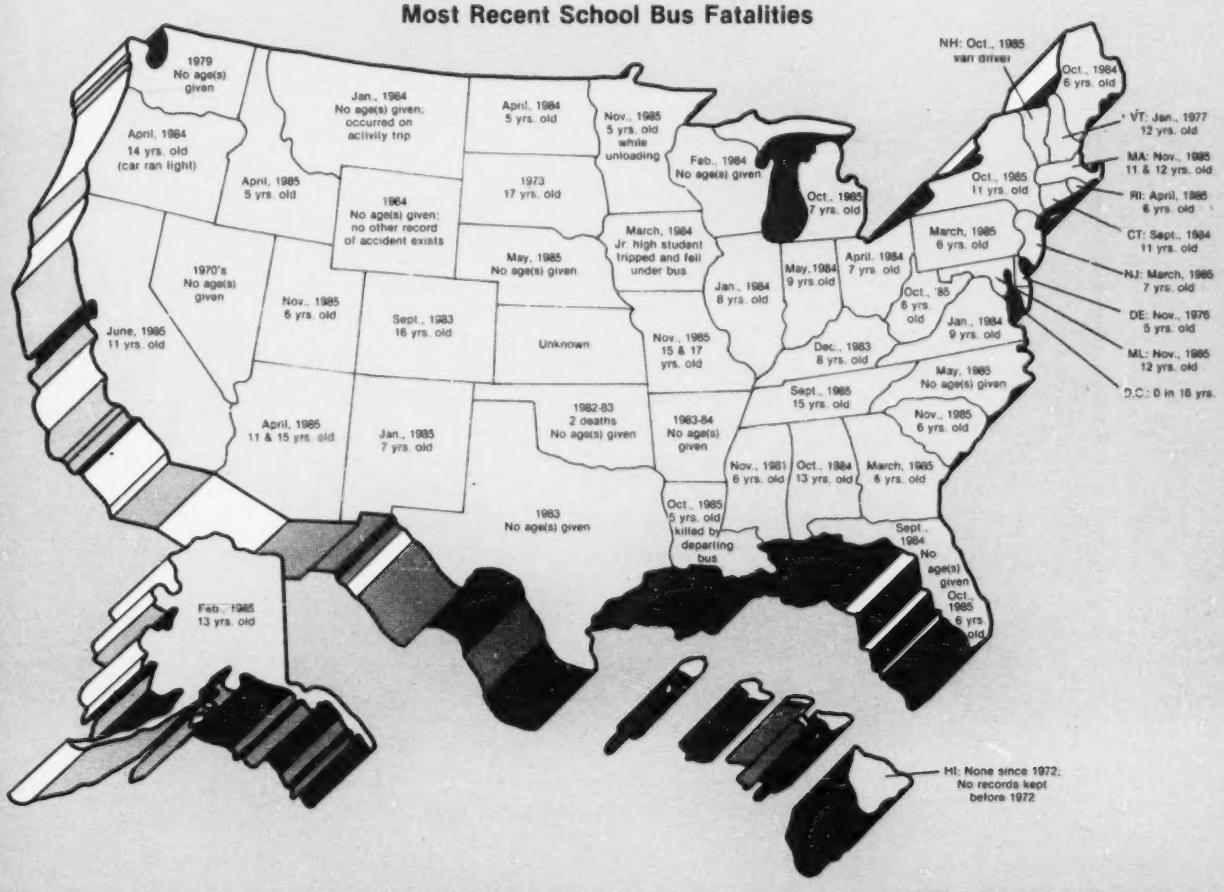
2nd Annual

State Directors of Pupil Transportation

What percentage of school buses in the U.S. are pre-April, 1977? Are states adopting the 10th Minimum Standards report? Or the Uniform Accident Report form? And how many states are anticipating seat belt legislation?

These questions were part of this year's 2nd annual *School Bus Fleet* State Director of Pupil Transportation Survey. Conducted by *SBF* in December 1985, the survey was sent to all 50 state directors and Washington, D.C. This year, all have responded (last year only 47 responded.)

Most Recent School Bus Fatalities



The response from state directors of pupil transportation, when asked for the most recent month and year a school bus fatality occurred in their state, and the age of the child, is shown above. All fatalities occurred (as specified by the survey question) during the morning or afternoon regular bus service, or during an activity trip. Fatalities that may have occurred while the child was traveling to or from the school bus stop were not requested, or included.

The first question of the survey dealt with the number or percentage of each state's school buses (both district and contract owned) that were manufactured prior to adoption of the April, 1977 school bus standards. Seven states reported 50 percent or more of their buses were pre-'77. Those states were: SD, GA (75 percent) MS, LA, IN, ND, CA and MN. Some states also reported having numbers of less than 10 percent, such as NJ—8 percent, and MI — 5 percent to name two. In total, 33.3 percent of the vehicles in the U.S. are reported to be pre-April, 1977 make. That would mean, out of a total of 255,178 Type I buses in the U.S., 84,208 are pre-'77 (totals are from SBF's 1986 Fact Book).

When it came to whether or not the state's have adopted both the 10th Minimum Standards report and the Uniform Accident Report Form, the answers were somewhat surprising. All of the states but two (AZ and MT) said they have not yet adopted the 10th Minimum Standards Report, though this should not be viewed with alarm. Typically, it can take up to five years for a state to implement the various guidelines in a Standards report.

Still, there are those directors who seem adamant that their state will not adopt the Standards. Washington reported it will select "those standards that will improve school bus specifications. Adoption would weaken the state's existing standards." Wyoming answered yes, they would adopt the report, adding "most parts — not all." Kentucky replied, "no, we exceed these standards at present." Other states, such as Louisiana, claimed to still be waiting to receive the new standards.

However, of those 49 directors who said their state had not yet adopted the Standards, when asked if they anticipate that their state will do so during 1986, 19 answered yes, 20 no, and 9 abstained.

SBF next asked those who said they have not adopted the Standards, whether their state would "officially or unofficially encourage use of the new Uniform Accident Reporting Form for school bus accidents?" A different response emerged from this question. Over four-fifths of the states answered yes (41, to be exact). Those answering no were: AL, AR, D.C., GA, IL, KS, PA, RI, WA and WI.

Issues vs. Ratings Chart

ISSUES	RATING 1	2	3	4	5
Insurance	21	11	9	2	2
Seat Belt Legislation	9	11	10	3	9
Handicapped Transportation Standards	9	12	12	7	1
Drug Useage by Drivers	4	12	15	8	1
Bus Replacement	12	10	11	7	4
Loading/ Unloading Zone Laws	21	8	11	7	2

SBF asked the directors to rate certain issues, with 1 being most important, 5 the least.

During recent years, drug use and abuse have become a priority concern of the Reagan administration and the nation. The matter has become a concern throughout the pupil transportation industry as well. As such, SBF asked the directors whether or not there were regulations (either district or statewide) on giving drug tests for school bus drivers, as well as regulations or legislation prohibiting the use of controlled substances by drivers.

Nearly all of the states replied no to drug testing regulations. 11 states (AR, CA, GA, LA, NJ, OK, OR, SC, TN, WA) and Washington, D.C. answered affirmative. As to whether the states had legislation and/or regulations prohibiting the use of controlled substances by drivers, all states claimed to have such rules with the exception of AL, AK, GA, IA, MA, MI, MN, MT, NY, ND, SC, VT and WY. Thus it wasn't too suprising when in a later question which asked directors to rank the importance of certain issues affecting the pupil transportation industry, that of the five issues listed drug usage by drivers was ranked as least important overall (see Issues vs. Ratings Chart).

SBF also asked state directors of pupil transportation whether their state requires a criminal background check for school bus drivers: 23 replied yes, 26 replied no, one said it was optional by local districts, and one state failed to reply at all.

For more than a year now, the debate over seat belts in school buses has been growing stronger and hotter. Should there or shouldn't there be legislation mandating the installation of belts in Type I buses? The SBF survey asked state directors whether they anticipated school bus seat belt legislative action in their state during 1986. (To date, according to the National Coalition of Seatbelts on School Buses (NCSSB), at least 64 individual school districts throughout the U.S. have initiated such installation on their own. This claim, though, has not been verified by SBF.)

35 state directors of pupil transportation answered yes, that they did, indeed, expect some form of seat belt legislation during the year. (This is three more reporting affirmatively than reported by SBF in the October/November 1985 issue. Meanwhile, in an unrelated though recent survey conducted by the

Highway Users Federation, only 27 states have legislation pending this year on seat belt use in automobiles, as compared to the Federation's tally of 32 states pushing for legislation on seat belt installation in school buses.) According to the SBF survey only 13 state are not expecting such legislation this year: AL, AK, AZ, AR, GA, KS, MN, MT, NE, ND, NV, OR, TX and WY (Ohio answered "possibly").

When it came to whether or not their state mandates restraint devices for transporting handicapped students, however, 32 directors replied their state does. States replying no to this question include AL, AZ, CA, FL, ID, IN, IA, KS, MD, MI, MO, NC, ND, NH, NV and WI.

Finally, the state directors were asked to rank the importance of certain issues to the pupil transportation industry. The issues listed on the survey form were insurance, proposed seat belt legislation, proposed standards for handicapped transportation, drug useage by drivers, school bus replacement age, and loading/unloading zone laws. The opinions of state directors are reported in the Issues vs. Ratings Chart shown below. Replies were solicited on the basis that 1 equaled an issue of most importance declining to 5 equalling an issue of least importance.

"...adoption (of the standards) would weaken the state's existing standards."

Of the issues given, the top two areas of concern for the majority of the directors seems to be insurance (rates) and the loading/unloading zone laws. Bus replacement ranked rather low in importance to the state directors, as did drug usage.

In this year's survey, SBF also asked state directors a provocative question: What is the most recent month and year a school bus fatality occurred in your state, and the age of the child. It was specified to the directors that "the fatality must have occurred during the morning or afternoon bus regular bus service or during an activity trip, and be traceable to one or more of the following conditions: a) the fatality occurred outside the bus during loading/unloading process, b) a moving school bus struck a stationary object or a moving vehicle, c) a moving school bus was struck by another vehicle, or d) a stationary school bus was struck by a moving vehicle."

The results are shown on the accompanying map of the United States (see Most Recent School Bus Fatalities Map). For instance, Washington, D.C. proclaimed to not have had any fatalities in the past 16 years (since 1969). South Dakota's last reported fatality was in 1973. However, 10 of the most recent reported fatalities were in the 13 — 17-year-old age bracket. And, 20 states reported that their most recent fatality was in the 1985 school year.

THE TRADITION CONTINUES...

Quality craftsmanship. Personal service. Family commitment.

For three generations, the Sardo family has brought these traditions to the transportation industry.

Today, Sardo Bus & Coach continues the same traditions that were started nearly 70 years ago.

Customer satisfaction still remains our top priority. There isn't a job too small or too big that we can't handle, or a problem we can't solve. We've combined a 10,000 square foot facility, skilled technicians and years of experience into Sardo Bus & Coach, to assure our customers of this commitment. What this means to you is the satisfaction of knowing you're getting the best possible job, at a reasonable price, delivered on time. Sardo Bus & Coach, reconstructs complete bus interiors and incorporates a unique blend of quality, dependability, service and heart into every job.

For more information concerning services, mail orders, selection of fabrics, or any questions that you may have please contact us at

Sardo Bus & Coach Upholstery
512 West Rosecrans Avenue,
Los Angeles, CA 90248
(213) 327-0532

You'll Be Glad You Did!

Circle 113 on SBF Action Card

APTI Computerized Routing & Scheduling System

- Total System Installation Including Mylar Map
- Automatic Time & Distance Calculation
- Automatic Rollover • Simulation Capability
- Full Transportation Reporting Feature

SAVE $ $ $ OPERATE EFFICIENTLY

APTI

APTI TRANSPORTATION SOFTWARE SYSTEMS

APTI Vehicle Maintenance System

- Fuel & oil usage reports
- Cost history reports
- Inspection tickler
- PM tickler
- And more...

APTI 2 Transportation Info System

- Route reports showing students
- Automatic rollover
- Pupil rosters
- Bus passes
- And more...

APTI • 9 FAIRWAY DRIVE, YARDLEY, PA 19067 • 215-493-8742

Circle 114 on SBF Action Card

C1575-1A

april/may 1986

school bus® fleet

a bobit publication

Sensors Save Lives
Chassis Trends Emerge

Plus: Crown's Back, Ednie's Views, Canada Looks South, SBF Wins Award

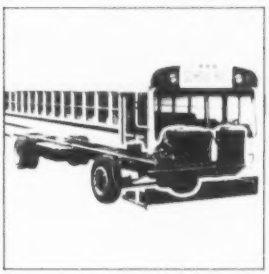
apr/may '86 vol. 31 no. 2

school bus fleet®

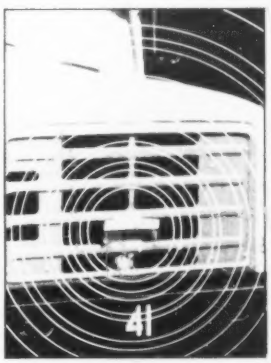
Bobit Publishing

Affiliated Publications:
Metro
Automotive Fleet
Waterbed
Limousine & Chauffeur
Contemporary Orthopaedics
Contemporary Surgery
Showcase USA
Yankee Trader

Crown *12*



Chassis *16*



Sensors *20*

Features

12 Crown's Diversification
After some bad-break years, this corporation is achieving major goals.

16 Chassis Change Course
Trends emerge from "static" market.

20 Sensors Make Sense
Presence sensors save nine-year-old in Alaska.

24 Pupil Transportation in Canada
A Canadian says U.S. standards could benefit busing in Canada.

32 Tire Management
Searching for cost effective ways to manage a non-durable product.

36 Executive Dialogue: Lee Ednie
A conversation with NAPT's new president.

42 Computers Cut Route Costs
Computer systems route and schedule entire fleets and save money.

44 Pins, Pins, & More Pins...
After 20 years, Accutrans' new division is a pointed success.

Departments

Industry News	5
Calendar	45
New Products	46
Classified Advertising	50
Advertiser's Index	55
Publisher's Perspective	56

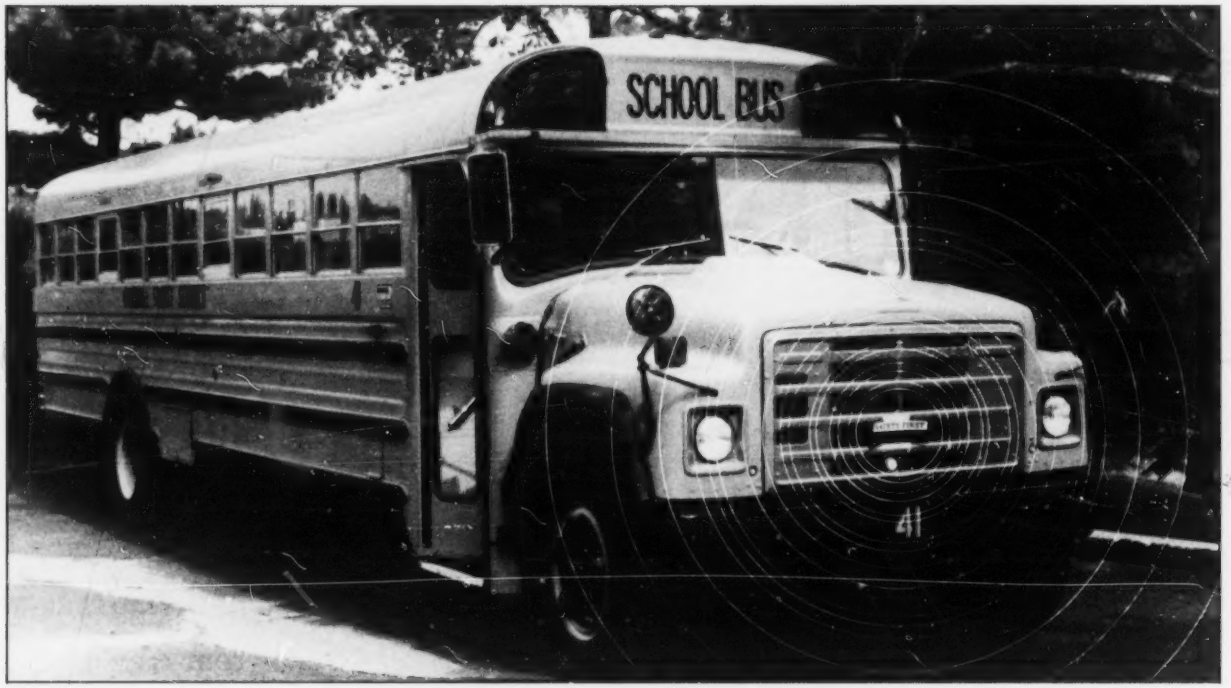
On the cover: Crown's Supercoach; photo by Steve Giraud.

Member:
BPA NSTA NAPT ABP American Business Press Inc

SCHOOL BUS FLEET (ISSN 0036-6501) is published six times a year (February, April, June, August, October, and December) by Bobit Publishing Company. The contents of this publication may not be reproduced either in whole or in part without consent of Bobit Publishing Company. Please address ALL correspondence to Editorial and Executive Offices at 2500 Artesia Blvd., Redondo Beach, California 90278. Subscription prices: $12 for 1 yr., $20 for 2 yrs. Canada, $18 for 1 yr., $30 for 2 yrs. Foreign, $50. Single copy, $2 except Fact Book, $10. Second class postage paid at Redondo Beach, CA 90278-9988 and at additional entry. POSTMASTER: Send address changes to School Bus Fleet, 2500 Artesia Blvd., Redondo Beach, California 90278.

Special Report

Sensors Make Sense



Perhaps it's time to put the seat belt issue in the back seat, and presence sensors in the front

By Robert E. Jones

Each year, the Kansas Department of Transportation (K-DOT) releases its annual statistics on school bus fatalities nationwide — both in vehicular accidents and in the loading/unloading process.

In the 1984-85 school year, 21 children were killed by their own school bus during the loading/unloading process. Broken down, K-DOT's tally showed 15 fatalities in front of the bus, and six in the rear. The following are some examples of K-DOT's summaries of what occurred in school bus accidents during that year:

— "...the driver was distracted for a moment, looked in the mirrors (including the crossover mirror), and saw nothing. The driver started the bus forward. The child was underneath the bus, in front of the left front wheel..."

— "...the child going around the rear of the bus slipped or fell under the right rear wheel, and was run over."

— "...the driver shut off the amber-and-red flashing light system, checked the mirrors and proceeded forward. The driver felt a bump, and several cars were blowing their horns. The driver stopped the bus and saw the child lying in the roadway..."

When K-DOT releases it's 1985-86 report, the list of fatality summaries will probably be quite similar. But it doesn't necessarily have to be that way. In fact, the report will be missing one incident in Alaska — an accident that almost, but did not, happen.

During the morning runs on Feb. 12, 1986, in Valdez, Alaska, a bus driver for Valdez Transport, a contractor operating the route for the district, proceeded to the school and unloaded the students as usual. After the children had moved away from the bus, the driver closed the door, put the bus in gear, and let the emergency brake off.

That's when the presence sensor unit in the vehicle's dash began to buzz loudly, and the unit's light started to flash. The driver instantly stepped on the brake, and heard a child in the bus call out, "A kid just crawled under the bus!"

Sure enough, when the driver got out and checked, he found that a nine-year-old child — his own nephew — was retrieving a football that had rolled under the massive vehicle.

The most interesting point of this Alaskan vignette, however, is not just that there will be one less fa-

tality on K-DOT's tally sheet next year, but that the school district had installed the presence sensor *only 24 hours before.*

The presence sensor had been installed as part of a test being conducted by the Alaskan School Bus Safety Committee. Said Lasetta Montgomery, Valdez Transport's school transportation manager: "Our district was selected to help evaluate both the presence sensors and a new strobe light for stop arms.

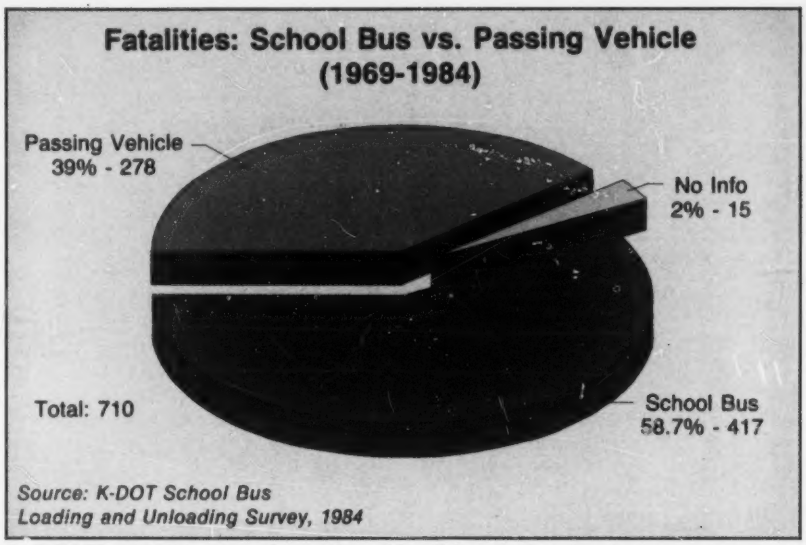
"We get a lot of snow up here," she added, "and we usually must drive in 'white out' conditions where the driver can't see very well ahead of him, let alone around the bus."

And, after this incident, what is the district's evaluation of the presence sensor? According to Ms. Montgomery, Valdez Transport has been transporting pupils in the district for nine years without an accident. "We are all in agreement," she said, "that, if it had not been for the presence sensor, we wouldn't have the same story today."

The Valdez City Council appears to have quickly agreed with that sentiment. Deciding that, if the use of presence sensors had already saved one life, it was worth installing the units in every bus in the district. With that in mind, the council approached the city's chief of police with the idea, and the police department offered to purchase the sensors for the district. Both the purchase and installation are now in action.

Besides Alaska, there currently seems to be a growing, groundswell movement throughout the nation on the use of presence sensor units.

Many districts — and states — are now considering the use of these devices on their school buses. According to Wayne Durley, president of C.A.R.E., Inc., a Lexington, Ohio-based manufacturer of presence sensors, Ohio State Senator Paul Pfeifer has introduced to the Ohio State Senate a bill that would require all new and the 16,000 existing school buses in the state to be equipped with sensor units. If the bill becomes law all newly purchased buses must have the sensors installed within six months. When asked if he thought the bill would pass, Durley commented, "The vote is already there."



In K-DOT's 1984-85 report, the number of fatalities attributed to the bus have gone up.

Other states that seem to be heading in the same direction are Rhode Island, New York, West Virginia and New Jersey. Rhode Island has gone through a four-month-long evaluation of the units. "There is a strong possibility," said Durley, "that Rhode Island Governor Di Prete will issue a mandate to put sensors on every school bus in the state."

In New York, the state's department of education ran a test program on sensor units. The result was that the DOE decided to "recognize" the units as a safety device.

"When the New York Department of Education recognizes a product as a safety item," said Allen Hersh, president of Safety First, Ltd. (a distributor for Con-Serv Safety Sensors), "it means that they will offer financial aid to districts that wish to install and use them. Depending upon the district's size, the state-aid formula allows the DOE to offer up to 90 percent financial assistance."

West Virginia seems to be on a path similar to that of New York. According to Mike Roscoe, past immediate president of the National Safety Council (NSC) and director of transportation of Wetzel City Schools in West Virginia, "Sensors are probably going to be listed as an option at the state's next standards conference in early April." If the units are listed as an option, he said, it would mean that districts wishing to install sensors could get up to 80 percent financial help.

However, Roscoe added that a proposal for sensor use won't go to the state legislature for a state-wide mandate until at least another year of testing goes by. "But," he said, "I do think we should go to the legislature eventually.

"I'll tell you this," Roscoe said, "I'm not a gadget man. I've seen a lot of things come and go, but I will fight for an option on these sensor units."

Sensors are not new or unusual to Roscoe. He has been involved with the units since October of 1983. He was first introduced to them at one of the NSC's congress meetings.

"I was with Paul Stewart (West Virginia's state director of pupil transportation) at the meeting," he said, "and we saw a Con-Serv unit made originally for dump trucks and such.

"On our trip home, I was talking to Paul, and we both thought, "Wouldn't it be great to have these unit on our buses." ' After that, he said, they talked to Con-Serv and got the ball rolling.

"We started out by testing three units on three buses," he said. "To

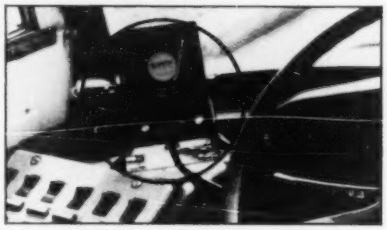
be honest, at first we weren't pleased. Vibrations and moisture negatively affected the units. So, we met with the Con-Serv people, and they revamped the units a bit."

After Con-Serv's re-working of the units for school buses, Roscoe has since felt the units were working out very well. "We monitored them very closely during the past winter," he said. "They did very well in the snow, and on the very rough mountain roads as well.

Roscoe also stressed that the sensors are not a cure-all in preventing fatalities in the loading/unloading process. "But," he said, "they are a very good safety aid." Although Roscoe was instrumental in the NSC's concern over seatbelt installation, he feels that, without much more testing, he cannot see seatbelt use on school buses yet.

"There are just too many other items out there to prevent fatalities in the loading/unloading process," he said.

There are several different types of presense sensor units on the market right now. Some operate on a frequency which sends and receives through an antenna, while others use various types of microwave electronics. Most districts and contractors who are currently using sensor devices prefer the micro-



The installation of presence sensors also includes a dash-mounted unit. Should a child go under a vehicle to retrieve a personal item, the driver will hear an audible warning and be able to see a flashing red light.

wave units because they are less susceptible to interference from rain, snow, and heavy dust conditions.

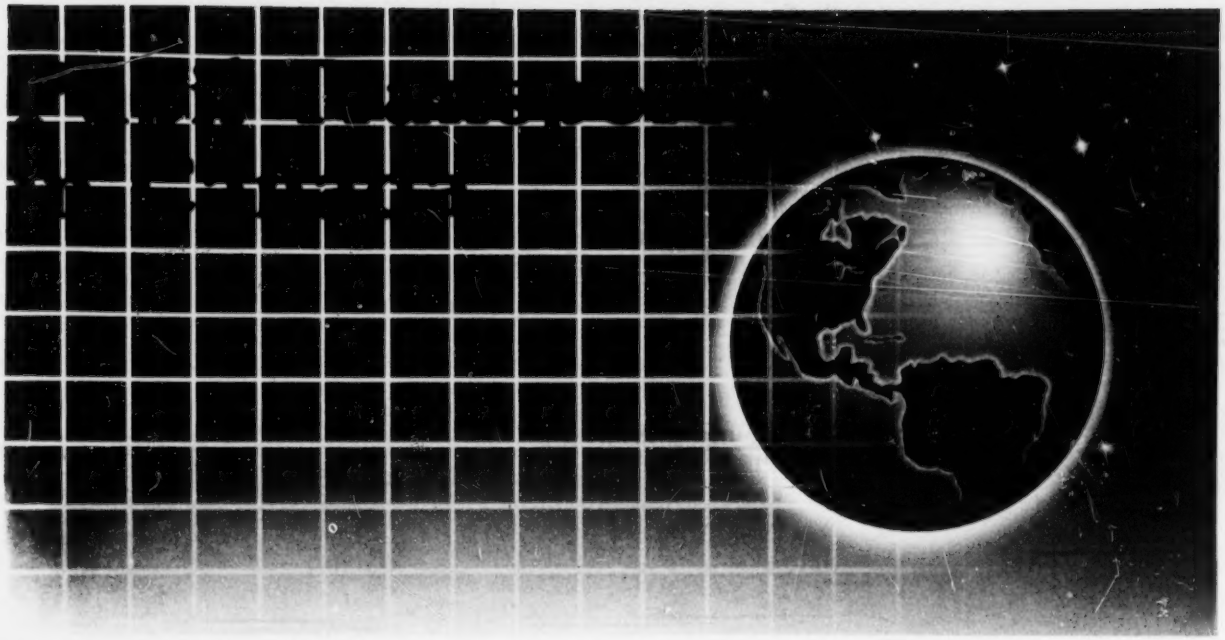
The "ideal" installation of sensors on school buses would be a four-unit set-up which would give 360 degrees of coverage. For most districts, this could be financially prohibitive. As such, the most effective installation would be one sensor in the front of the bus, and a sensor near the right rear, dual wheel (K-DOT reports show that the highest fatality rates are in front of the bus and by the right rear wheel.) But even the installation of one sensor could mean the difference between a child's safe trip home, or a horrendous news-at-eleven incident.

While the seatbelt debate continues to roar on, transportation directors and contractors will still be faced with the yearly K-DOT statistics which, in the latest report, states : "...Students departing the bus on the way home were involved in 67.9 percent of all fatalities in the study," and "...In the 1980-84 calendar years, the school bus was involved in *108 of 156 fatalities that occurred.*"

Seatbelts undoubtedly can save lives, but the statistics on such accidents/fatalities just don't seem to be there to support the heavy financial burden of installation. Meanwhile, *outside* the bus, the number of fatalities continues to remain unacceptably high...

Circle 116 on SBF Action Card

Circle 117 on SBF Action Card



A Canadian looks to the U.S. to help reduce school bus risks and create solid statistics

By Lloyd Wagner

A look at Canada's pupil transportation system can mean a great deal more if it is understood within the context of what is happening across the country. There is a tremendous variety of approaches to pupil transportation on the part of the Canadian provincial governments. Some provinces have highly organized structures through which they direct and control the business of school busing. Other provinces take a "hands off" approach and do little more than provide funding.

At present, the across-Canada correlation of busing efforts is nil.

As a Canadian, particularly as a resident of Saskatchewan, the gigantic U.S. pupil transportation system to the south of us — while still having weaknesses in certain states — has several characteristics that I find most enviable, such as good and improving statistics collection and analysis. When studying what is happening in the U.S., one finds very quickly that there is easy access to the statistics collected by the National Safety Council (NSC) for school bus accidents by state, and the Kansas Department of Transportation (K-DOT) for loading/unloading zone injuries and fatalities. Both of these have acknowledged weaknesses. The NSC numbers are understood to be low by as much as 10 or 20 percent.

Despite all this, the numbers that have been collected by these two agencies are of inestimable value, not only for decision-makers in the U.S., but for those in Canada as well.

At this time, I believe these numbers represent proof that risk levels for children riding school buses in Canada can be reduced. It is going to be very interesting to watch as the U.S.'s Uniform Accident Reporting System, adopted at the 10th National Minimum Standards Conference on School Transportation, goes into place and improves on the already-available statistics. When looking at these statistics, you can very quickly get an understanding of where the big gains have been made in the U.S., and where more effort will then produce the greatest risk reduction.

Another enviable U.S. characteristic is the federal funding under Standard 17. U.S. federal money has put into place a country-wide (nearly complete) system of state pupil transportation directors, local pupil transportation directors, and

---

Lloyd Wagner is a school trustee of the Kelvington, Saskatchewan (Canada) School Division. He also farms 1,500 acres there. Because his four children ride the bus to school, he became concerned over both Saskatchewan's and the Federal government's approach to pupil transportation.

Wagner has been digging up facts on how the U.S. handles pupil transportation as compared to Canada. He recently presented his views to School Bus Fleet, *adding the comments, "Remember, I'm no expert. Nobody's paying me to learn about school buses. I have a father who is 80 years old and still drives the tractor, and I just want all of my children to get to be that old..."*

Wagner has also presented the following facts, and more, to the recent Prince Albert Conference in Canada.

(Editor's note: The following views and data are solely those of the author)

USE THE ONLY KIT
WITH STEEL BUSHINGS
KING PIN Quik kit™

Install the Kaiser QWIK KIT™ and with a normal maintenance program you can plan 4 to 5 times the wear life between repairs. All QWIK KITS™ come complete.

The Kaiser QWIK KIT™ Bushing is made of steel and can be hand twisted in for fast easy repair. ALL MEASUREMENTS HAVE BEEN PREDETERMINED — minimum tear down — assemble without additional work. SAVE TIME and MONEY . . . install Kaiser QWIK KITS™

SAVINGS

- **LESS DOWN TIME** — Cut down time in half on steering knuckles/spring repairs.
- **MINIMUM TEAR DOWN** — Job can be done without completely removing steering knuckles or springs from vehicle.
- **ORDINARY HAND TOOLS USED** — Spiral designed bushing makes installation a simple hand operation.
- **ELIMINATES LINE REAMING** — All sizes have been predetermined which eliminates reaming when installing a kit.
- **4 to 5 TIMES MORE LIFE** — Spiral steel bushing gives longer life thru its compatibility with the steel pin.
- **BETTER LUBRICATION** — More grease capacity from grooved bushings and pins. Grease intervals can be extended.

FOR MORE INFORMATION WRITE

V.W. Kaiser Engineering, Inc.
8642 Gleason Street Millington, Michigan 48746

Circle 119 on SBF Action Card

a structure for training drivers and pupils. (Editor's Note: Federal funds for driver training have been virtually eliminated.)

The U.S. also has a national conference on school transportation and, as a Canadian, I envy the reality of getting the country's best pupil transportation safety minds together every five years to blend new safety ideas. The current National Minimum Standards for School Buses and School Bus Operations can surely serve as a guide to *anyone* wishing to get his busing system on the right track.

And, there is another U.S. characteristic to envy — national associations. The National Association of State Directors of Pupil Transportation Service, the National Association for Pupil Transportation (NAPT), and the National School Transportation Association (NSTA) are all working to make improvements that will keep more children alive and well. Then there are the professional trade journals, newsletters and magazines that are providing information to anyone interested, as well as the training centers.

Canada's approach.

The best description of Canada's approach to pupil transportation is to say that there is a variety. School bus ownership patterns range from Ontario, where 90 percent of the buses are owned by a couple of contractors, to Prince Edward Island with 100 percent publicly-owned and Manitoba with over 90 percent publicly-owned. Along with this, provincial involvement ranges from a "hands off" attitude in Saskatchewan and Alberta (where school boards have "local autonomy") to the highly centralized systems in New Brunswick and Manitoba, where the provincial governments insist on a lot of influence.

According to the Canadian constitution, education is a provincial matter. Federal involvement in school busing has largely been in the area of bus construction and standards. This must change if Canadians are to see school bus risk levels decrease substantially.

CHART I
Canadian School Bus Fatalities

Province/Population	79-80	80-81	81-82	82-83	83-84	Total
British Columbia *2,900,000*	0	0	0	0	0	0
Alberta *2,350,000*	4	0	2	1	1	8
Saskatchewan *1,010,000*	0	0	0	0	1	1
Manitoba *1,060,000*	0	0	0	0	1	1
Ontario *9,020,000*	4	1	1	4	3*	13
Quebec *6,560,000*	2*	2*	2*	4*	3*	13
New Brunswick *710,000*	N/A	N/A	N/A	N/A	N/A	N/A
Nova Scotia *880,000*	0	1	0	1	1	3
Prince Edward Island *125,000*	N/A	N/A	N/A	N/A	N/A	N/A
Newfoundland *580,000*	0	1	0	1	1	3
Total	**10**	**5**	**5**	**11**	**11**	**42**

**estimated*

Right now, every Canadian province has a different way of collecting statistics. Therefore, putting together country-wide statistics is a difficult task. In addition, many statistics are likely to be incomplete. For example, a 1975 study done by the University of Saskatchewan's Transportation Centre found that only 21 percent of the Saskatchewan School Units maintained any form of accident or injury records relating to mishaps involving school buses.

I have no reason to believe it is much better today.

I attempted to get some Canada-wide statistics on school bus accidents, and found that neither Statistics Canada nor Transport Canada (two federal transportation research organizations) kept any such data.

The B.U.S. group

The Bus Us Safely group in Al-

CHART II
Western Canada — School Busing

	Manitoba	Saskatchewan	Alberta	British Columbia
% Publicly Owned 1985	90	56	58	70*
System in place to allow phase-out of pre-Apr 1st 1977 buses	Yes	No	No	No
Mandatory Stop Arms	Yes	No	No	No
Provincial Pupil Transportation Director	Yes	No	No	No
Local Pupil Transportation Directors	Yes	Few	Many Systems	Many Systems
Provincial Organization of Above	Yes	No	Yes	Yes
Proper Driver Selection	Yes	No	No	Most
Driver Training Mandatory Including Pre-service	Yes	No	No	No
Proper Maintenance	Most	Majority	Majority	Most
Safety Instruction for Pupils	Yes	No	Some Divisions	By School Division

**The percentage of publicly-owned buses is increasing in all western provinces except British Columbia. This could have something to do with the fact that the funding system provides about 10 percent more provincial money, on average, to systems employing contractors.*

berta was formed in the spring of 1985 following the death of a first grade student in a school bus accident. In trying to understand what Canadian effort was being made in the area of school bus safety, the group found that it had to create its own statistics. By contacting people in provincial governments across Canada, they were able to piece together the information contained in Chart I.

Of the 42 fatalities shown in these statistics, 16 were "in- bus" deaths, and the remaining 26 fatalities were pupils killed by either third-party vehicles or the bus itself.

At best, one could infer from these statistics that there is a need for a central federal agency (i.e. Transport Canada) to get involved in producing, analyzing and distributing improved, *standardized* statistics. This would be an opportune time to join forces with the Americans in adopting the uniform accident reporting they have initiated.

These statistics also show that Canadian children die in school bus accidents at a rate of about 10 per year. Since the Canadian system is only about one-tenth the size of the U.S. system, that would make our current fatality rate comparable to the U.S.'s rate of 10 years ago.

Then there is the size of the sample these statistics were taken from. The whole of Canada is barely large enough (relative to incidence rate) for proper statistical analysis. Even with dependable statistics, it would be difficult to differentiate between trends and statistical deviation. This also suggests that a joint Canadian/American effort in this area could be very productive — especially for Canadian efforts.

Atlantic Canada's annual conference

Once a year, school bus safety officials from the Atlantic Canada provinces — Newfoundland, Prince Edward Island, New Brunswick and Nova Scotia — get together in May for the Annual Pupil Transportation Conference in Dartmouth, Nova Scotia. Interest in this conference is growing. This year will be the 16th conference. This progressive approach to school bus safety in much of Atlantic Canada has not happened by accident but, rather,

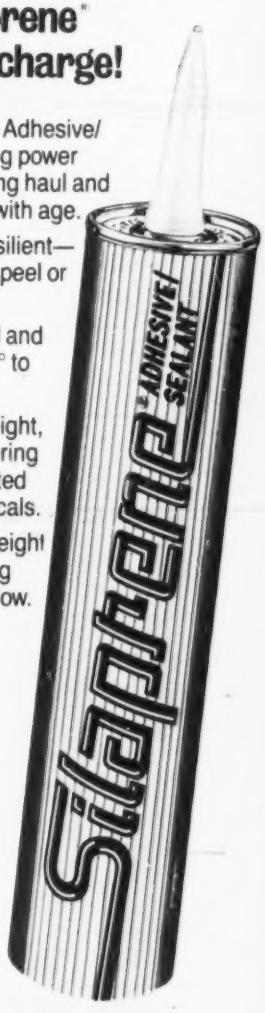
The best Adhesive/ Sealant you've ever used

Prove it to yourself. Try Silaprene® FREE of charge!

Silaprene Adhesive/ Sealant holding power lasts for the long haul and gets stronger with age.

- Remains resilient— won't crack or peel or get brittle.
- Resists cold and heat from -65° to 250°F.
- Resists sunlight, ozone, weathering and is unaffected by road chemicals.
- Available in eight colors including school bus yellow.

For FREE sample, write to Uniroyal



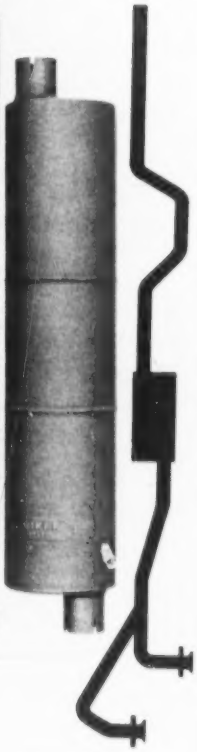
Silaprene Adhesive/Sealant

UNIROYAL

Adhesives Department
Uniroyal, Inc.
312 North Hill Street
Mishawaka, IN 46544

Circle 120 on SBF Action Card

RIKER MAKES A DIFFERENCE



MADE WITH PRIDE IN USA

Choose the exhaust system that makes a difference.

Riker exhaust systems are a perfect fit for your entire School Bus fleet.

Designed for easy installation, Riker's new line of complete replacement exhaust systems, mufflers and accessories exceeds OEM specs with an expected life 2 to 3 times longer than OEM parts. They'll keep your School Buses out of the shop and reduce your repair costs. It all makes RIKER the best line for your bottom line.

Call for our new catalog which includes an easy-to-use cross reference of OEM part numbers.

RIKER INDUSTRIES is a leading manufacturer of exhaust systems and clamps and is a specialist in tube bending for OEM applications.

RIKER INDUSTRIES
4901 Stickney Avenue
Toledo, OH 43612
419-729-1626

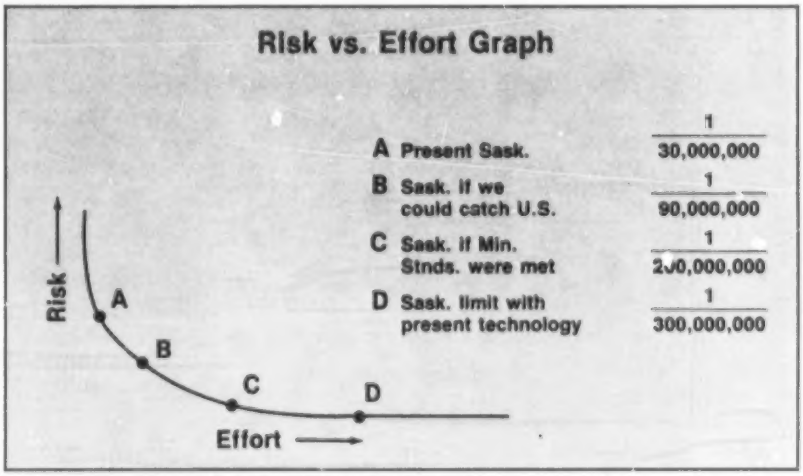
Circle 121 on SBF Action Card

through a cooperative approach.

The Alberta Bus Supervisors' Association has been trying to create a conference similar to the Atlantic one and organized — if not nationwide — at least for Western Canada. So far they have not been successful. But, this is not surprising when you consider that a neighboring province — Saskatchewan — has hardly any bus supervisors and no provincial association available for representation.

Manitoba shows the way

Manitoba is quietly showing all of Canada how to do it right, however. Under Provincial Pupil Transportation Director Brian Riehl, a solid statistics collecting and analyzing system has been put into effect. The Manitoba school bus drivers have even been motivated to contribute. They understand , now, how future accidents can be prevented by understanding how past accidents were caused. Their Comprehensive Risk Control Program also includes working closely with Americans. For example, of the *eight Canadians* registered at the U.S.'s 10th Minimum Standards Conference on School Transportation in Warrensburg, Mo., *six of them were from Manitoba.* And, when the NSTA surveyed the U.S. and Canada in 1984 regarding current levels of compliance with Standard 17, Manitoba was the only province to respond!



No one can predict where the next school bus accident will take place, or how severe that accident will be. However, the number of accidents, as well as the number of accidents in each category of severity, do repeat themselves in a random, statistical and predictable manner.

The following real numbers can explain how sample size comes into the statistical picture. Keep in mind that Manitoba and Saskatchewan each bus about 60,000 pupils daily, while Alberta buses about 160,000.

Total school-bus-related accidents(reported)

	1980	1981	1982	1983	1984	average
Alberta	396	402	342	307	321	354
Manitoba	118	86	108	125	115	110
Saskatchewan	N/A	N/A	N/A	N/A	N/A	N/A

School-bus-related accidents with injuries

	1980	1981	1982	1983	1984	average
Alberta	58	141	120	62	87	94
Manitoba	26	1	2	7	19	11
Saskatchewan	16	17	18	17	10	16

Pupil deaths associated with school busing

	1980	1981	1982	1983	1984
Alberta	0	4	3	1	3
Manitoba	0	0	0	1	0
Saskatchewan	0	0	0	1	0

These and other estimates form the basis in calculating the Risk vs. Effort Graph, which illustrates how increased effort can reduce risk in school busing.

Chart II shows that, of the four Western Provinces, Manitoba is by far the most progressive in its approach to school bus safety.

Many good things are happening in pupil transportation safety in Saskatchewan. The leaders in this area are Lance Peat (a bus safety supervisor), the Highway Traffic Board and progressive individual school divisions. In order for the province to progress further, Saskatchewan will need to decrease local school board autonomy and establish some leadership at the provincial level in the Department of Education.

Still, the average risk level in Saskatchewan appears to be only slightly better than that in the U.S. 10 years ago. I have calculated that the average risk (which varies from one school division to another — and even within a single route) per-day, per-student of being killed in a school bus accident is about one in 30 million. That may sound like pretty good odds but, for a family with four children, this suddenly becomes one chance in 3,000 of losing a family member in a school bus accident.

This and other estimates that I have made are included in the Risk vs. Effort Graph, which illustrates how increased effort can reduce risk in school busing while subject to the effects of diminishing returns. I have worked this graph out in the same way I must work out the statistics needed to predict the risks versus the effort/financing in producing the yearly farm crop.

The results of this graph show that Saskatchewan risk levels, in my estimation, are at least three times higher than necessary, and perhaps 10 times higher than the best we could make of them. We have had only three recorded pupil deaths in the province — about one-third of what my calculations suggest. This could mean that either our risk levels are lower than my estimates or that we have had good luck (until now) in low-incidence statistics in a small sample size. Whether my numbers are right or wrong, however, it still seems clear that we could reduce risk levels significantly by introducing the proven U.S. ideas.

Many studies — little response

Perhaps the most disheartening note is that most of the basic ideas incorporated in the modern concept of a safe busing system have, at one time or another, been suggested by one study or another right here in Saskatchewan and close by in Alberta, but *haven't* been implemented on a provincial basis.

In 1973, E.F. Bardock and L.W. Mathews did a study for the Alberta Department of Education. The point stressed the most in the report was that a "transportation supervisor" is absolutely essential in every school bus system. The report also stressed the superiority of public ownership over contracting.

In 1974, Murray Scharf did a study of rural education for the Saskatchewan School Trustees Association. Regarding school busing,

STOP PASSING VEHICLES
. . . SAVE LIVES!

The safety of school children depends on the ability to stop passing vehicles.

Now, with Tomar's Stop Arm Strobe Unit, vehicles will clearly see the stop arm's distinct bursts of flashing red lights in bad weather and during reduced daylight.

Tomar's Strobe Light Kit is complete and easy to install.

Stop passing vehicles and save lives. Call today for complete technical specifications and information on Tomar's Stop Arm Strobe Light Unit.

Distributed by:
MAXI-SIGNAL PRODUCTS CO.
P.O. Box 398, Dept MM, La Grange, IL 60525
(312) 354-4730 Ext. 39

MANUFACTURED BY: TOMAR ELECTRONICS INC.

Circle 123 on SBF Action Card

KEEP YOUR BATTERIES CHARGED

EVERY DAY IS AN EASY START WITH SOLAR ELECTRICITY

ARCO solar modules are a practical, state of the art system that make start-ups easier, even in the coldest weather. By converting sunlight into electricity they insure that your batteries have a constant charge, and thereby keep your buses on the road more of the time. To learn how renewable, inexpensive solar energy can benefit your school call us today.

TEL: 1-800-23SOLAR
(In MD. (301) 796-8094)

ARCO Solar · Photovoltaic Products

ATLANTIC SOLAR POWER
6455 Washington Blvd., Baltimore, MD 21227
TELEX: 87-545 ALB ENG PO BAL

Circle 124 on SBF Action Card

he found that the general mechanical condition of buses in the province was unacceptable. He also found that publicly-owned buses had fewer defects than contracted buses — which was found to be the case as well in a 1975 study. His recommendations included exclusive public ownership and centralized, organized maintenance.

The University of Saskatchewan Transportation Centre's 1976 study, which analyzed school bus accidents in Saskatchewan, concluded that 54 percent of the accidents were caused by dangerous or inappropriate actions of the school bus driver. So, just about the time the Americans were bringing in mandatory driver training, Saskatchewan had a study telling just what driver training could do. But the province did not act on it.

The study also discussed the aspect of pupil discipline. Having no training, drivers are left to "learn by trial and error," the report states. Perhaps the most intriguing recommendation in this report is a 15-foot rule that is similar to the 10-foot rule now being adopted in the U.S. It was suggested that, if students crossed in front of the bus at a distance of 15 feet, the driver would have a clear view of them. It was an interesting concept, but equally disappointing — none of these ideas have ever been put into place.

Then we had the 1983 Saskatchewan School Bus Safety Review Committee Interim Report that discussed a whole range of ideas from the training of bus drivers to raising the fine for car drivers who pass school buses unboarding to radio communications. I found it interesting how the report touched on the concept of a "public agency" and talked about the value of a "school bus fleet supervisor" in each school division.

After that came the 1984 Final Report from the same committee. One result of this report is that every school bus in the province now has a lighted stop-arm. But the major thrust of the report was around the idea that "The single greatest threat to the safety of children who ride school buses is motorists who pass the bus during loading or unloading."

All of the ideas coming out of this report were good. But the committee's conclusion was not correct and did not, to a large extent, address the two larger threats of in-bus injuries in a collision and the danger of a bus running over a child during the loading/unloading process.

Strange, isn't it, that the birthplace of Medicare in North America has so much difficulty in getting a modern pupil transportation system into place?!

And, there is this final note: At the very time this article is being printed, both the governments of Alberta and Saskatchewan are considering implementing some of the modern ideas developed south of the border. Many of us are praying that we don't have to wait for more deaths to occur in order to give our governments the political will to make improvements.

THE TRADITION CONTINUES...

Quality craftsmanship. Personal service. Family commitment.

For three generations, the Sardo family has brought these traditions to the transportation industry.

Today, Sardo Bus & Coach continues the same traditions that were started nearly 70 years ago.

Customer satisfaction still remains our top priority. There isn't a job too small or too big that we can't handle, or a problem we can't solve. We've combined a 10,000 square foot facility, skilled technicians and years of experience into Sardo Bus & Coach, to assure our customers of this commitment. What this means to you is the satisfaction of knowing you're getting the best possible job, at a reasonable price, delivered on time. Sardo Bus & Coach, reconstructs complete bus interiors and incorporates a unique blend of quality, dependability, service and heart into every job.

For more information concerning services, mail orders, selection of fabrics, or any questions that you may have please contact us at

Sardo Bus & Coach Upholstery
512 West Rosecrans Avenue,
Los Angeles, CA 90248
(213) 327-0532

You'll Be Glad You Did!

Circle 125 on SBF Action Card

MIRROR, MIRROR, ON THE BUS
WHO'S GOT
QUALITY YOU CAN TRUST?

ROSCO

The Bus Mirror Source

For over 75 years Rosco has been the frontrunner in Bus Mirror manufacturing.

As an original equipment manufacturer, we are in the position to meet the industry's special needs with a complete line of the highest quality bus mirrors.

Please call or write for further details.

ROSCO

144-31 91st Avenue
Jamaica, New York 11435
(718) 526-2601

Circle 126 on SBF Action Card